

**Notice of Allowability**

Application No.

10/780,472

Applicant(s)

MATTHEUS BERNTSEN ET AL.

Examiner

Marie R. Yamnitzky

Art Unit

1794

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE and amendment filed February 01, 2008.
2. ☒ The allowed claim(s) is/are 13-22 (renumbered as 1-10, respectively).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/790,201.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |  |
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| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application  |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date <u>20020208</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment  |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance                                    |
|  | 9. <input type="checkbox"/> Other _____.   |

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's amendment filed on February 01, 2008, which amends claims 13, 17 and 21, and cancels claims 23 and 24, has been entered.

Claims 13-22 are pending.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

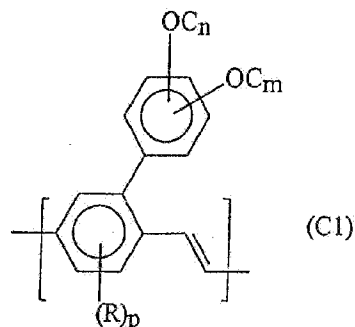
Authorization for this examiner's amendment was given in a telephone interview with Ernestine Bartlett on February 08, 2008.

The application has been amended as follows:

Claims 13 and 17 have been amended as shown in the following complete list of claims:

1-12. (Cancelled)

13. (Currently Amended) Aryl-substituted poly-p-arylenevinylene consisting of a repeating unit of the formula (C1),



in which  $-OC_m$  and  $-OC_n$  are alkoxy groups,  $m$  and  $n$  are integers from 2 to 6 with  $m + n = 8$ ,  $p$  is 1, 2 or 3 and in which  $R$  is  $CN$ ,  $Cl$ ,  $F$ ,  $CF_3$ ,  $NO_2$  or  $SO_3Z$  wherein  $Z$  is a monovalent cation, or in which  $R$  is  $-XR^1$  wherein the unit  $-X-$  represents a single bond,  $-O-$ ,  $-S-$ ,  $-CO-$ ,  $-COO-$ ,  $-OCO-$ ,  $-SO-$ ,  $-SO_2-$ ,  $-N(R^2)-$  or  $-N(R^2)CO-$ ;

wherein  $R^1$  and  $R^2$  are the same or different and constitute a straight-chain branched or cyclic  $C_1$ - $C_{20}$  alkyl group or together a  $C_1$ - $C_{20}$  alkylene group, in which  $C_1$ - $C_{20}$  alkyl group or  $C_1$ - $C_{20}$  alkylene group one or more hydrogens are optionally substituted by  $F$  or a  $C_4$ - $C_{12}$  aryl group and/or one or more non-adjacent  $-CH_2-$  units are optionally substituted by  $C_4$ - $C_{12}$  arylene,  $-O-$ ,  $-S-$ ,  $-CO-$ ,  $-COO-$ ,  $-OCO-$ ,  $-SO-$ ,  $-SO_2-$ ,  $=N(R^3)-$ ,  $-N(R^3)-$  or  $-N(R^3)CO-$ , and where  $R^3$  is  $C_1$ - $C_{20}$  alkyl, or in which  $R$  is a  $C_4$ - $C_{12}$  aryl group which may or may not be substituted,

said aryl-substituted poly-p-arylenevinylene when incorporated in an active layer of an organic electroluminescent device having one or more active layers being effective to enhance the service life of said organic electroluminescent device to at least 45 h when said electroluminescent device is driven at a constant current, at an initial brightness of  $200 \text{ Cd/m}^2$ , and at an ambient temperature of  $80^\circ\text{C}$ .

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14. (Previously Presented) Aryl-substituted poly-p-arylenevinylene as claimed in claim 13

wherein  $m = n$ .

15. (Previously Presented) Aryl-substituted poly-p-arylenevinylene as claimed in claim 13

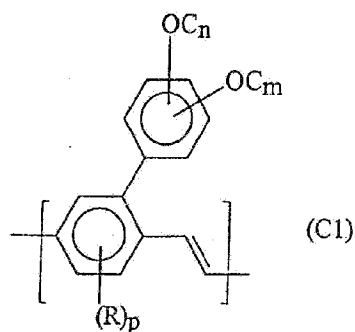
wherein  $-OC_m$  and/or  $-OC_n$  is 2-methylpropyloxy.

16. (Previously Presented) Aryl-substituted poly-p-arylenevinylene as claimed in claim 15

wherein the repeating unit (C1) is a 2-(3',4'-bis(2-methylpropyloxy)phenyl)-1,4-phenylene vinylene repeating unit.

17. (Currently Amended) An organic electroluminescent device comprising:

an aryl-substituted poly-p-arylenevinylene consisting of a repeating unit of the formula (C1),



in which  $-OC_m$  and  $-OC_n$  are alkoxy groups,  $m$  and  $n$  are integers from 2 to 6 with

$m + n = 8$ ,  $p$  is 1, 2 or 3 and in which  $R$  is  $CN$ ,  $Cl$ ,  $F$ ,  $CF_3$ ,  $NO_2$  or  $SO_3Z$  wherein  $Z$  is a

monovalent cation, or in which  $R$  is  $-XR^1$  wherein the unit  $-X-$  represents a single bond,  $-O-$ ,

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$-\text{S}-$ ,  $-\text{CO}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{SO}-$ ,  $-\text{SO}_2-$ ,  $-\text{N}(\text{R}^2)-$  or  $-\text{N}(\text{R}^2)\text{CO}-$ , and wherein  $\text{R}^1$  and  $\text{R}^2$  are the same or different and constitute a straight-chain branched or cyclic  $\text{C}_1\text{-C}_{20}$  alkyl group or together a  $\text{C}_1\text{-C}_{20}$  alkylene group, in which  $\text{C}_1\text{-C}_{20}$  alkyl group or  $\text{C}_1\text{-C}_{20}$  alkylene group one or more hydrogens are optionally substituted by F or a  $\text{C}_4\text{-C}_{12}$  aryl group and/or one or more non-adjacent  $-\text{CH}_2-$  units are optionally substituted by  $\text{C}_4\text{-C}_{12}$  arylene,  $-\text{O}-$ ,  $-\text{S}-$ ,  $-\text{CO}-$ ,  $-\text{COO}-$ ,  $-\text{OCO}-$ ,  $-\text{SO}-$ ,  $-\text{SO}_2-$ ,  $-\text{N}(\text{R}^3)-$  or  $-\text{N}(\text{R}^3)\text{CO}-$ , and where  $\text{R}^3$  is  $\text{C}_1\text{-C}_{20}$  alkyl, or in which R is a  $\text{C}_4\text{-C}_{12}$  aryl group which may or may not be substituted;

the service life of said organic electroluminescent device being enhanced to at least 45 h when said device is driven at a constant current, at an initial brightness of  $200 \text{ Cd/m}^2$ , and at an ambient temperature of  $80^\circ\text{C}$ .

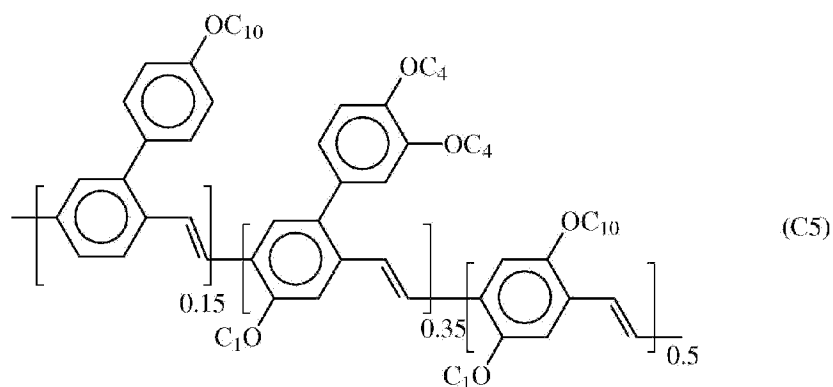
18. (Previously Presented) An organic electroluminescent device according to claim 17, wherein  $m = n$ .

19. (Previously Presented) An organic electroluminescent device according to claim 17, wherein  $-\text{OC}_m$  and/or  $-\text{OC}_n$  is 2-methylpropyloxy.

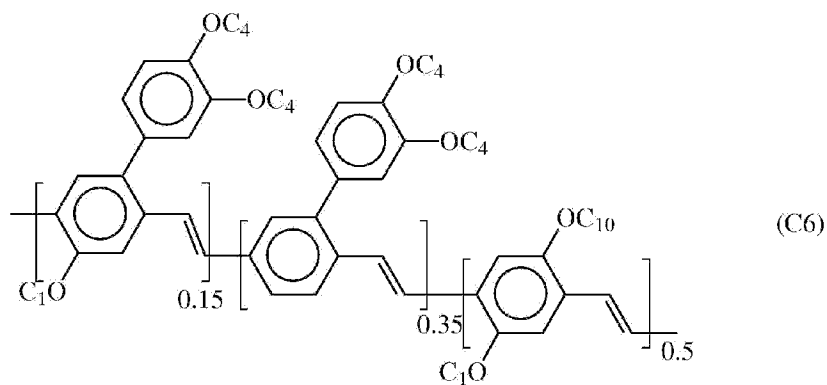
20. (Previously Presented) An organic electroluminescent device according to claim 19, wherein the repeating unit (C1) is a 2-(3',4'-bis(2-methylpropyloxy)phenyl)-1,4-phenylene vinylene repeating unit.

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21. (Previously Presented) An aryl-substituted poly-p-arylenevinylene selected from the group consisting of polymers having the formulae:



and



wherein OC<sub>4</sub> is a 2-methylpropyloxy group and OC<sub>10</sub> is a 3,7-dimethyloctyloxy group,  
 said aryl-substituted poly-p-arylenevinylene when incorporated in an active layer of an organic  
 electroluminescent device having one or more active layers being effective to enhance the  
 service life of said organic electroluminescent device to at least 800h when said

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electroluminescent device is driven at a constant current, at an initial brightness of 100 Cd/m<sup>2</sup>, and at an ambient temperature of 70°C.

22. (Previously Presented) An organic electroluminescent device comprising an aryl-substituted poly-p-arylenevinylene as claimed in claim 21 capable of providing a service life of at least 800h when driven at a constant current, at an initial brightness of 100 Cd/m<sup>2</sup>, and at an ambient temperature of 70°C.

23-24. (Cancelled)

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Any inquiry concerning this communication should be directed to Marie R. Yamnitzky at telephone number (571) 272-1531. The examiner works a flexible schedule but can generally be reached at this number from 7:00 a.m. to 3:30 p.m. Monday-Friday.

The current fax number for all official faxes is (571) 273-8300. (Unofficial faxes to be sent directly to examiner Yamnitzky can be sent to (571) 273-1531.)

/Marie R. Yamnitzky/  
Primary Examiner, Art Unit 1794

MRY  
February 08, 2008